National Aeronautics and Space Administration

AeroSpace Frontiers

Volume 8 Issue 5 May 2006

Dr. Porter's visit focuses on reshaping aeronautics mission

BY DOREEN ZUDELL

NASA Associate Administrator of Aeronautics Research Mission Directorate Dr. Lisa Porter's recent visit to Glenn offered her a variety of venues to discuss Glenn's cutting-edge research and NASA's aeronautics mission.

C-2006-814

C-2006-750

C-2006-788

Photos by Marvin Smith

Clockwise: Dr. Porter and Dr. Whitlow meet with local media representatives; Scott Thomas, Propulsion Systems Division, talks with Dr. Porter on hypersonics propulsion technologies during the poster session; and Damador Ambur, chief of the Materials and Structures Division, briefs Dr. Porter, elected officials and community leaders in the Materials and Structures Laboratory Building.

The April 19 visit began with paper presentations from Glenn researchers to Porter on the topics of materials, computational fluid dynamics and instrumentation. These papers, representing Glenn technical accomplishments, were recognized for their merit at recent professional conferences. Informal poster sessions followed, highlighting 11 more examples of innovative technologies, and providing opportunities for Porter to interact one-on-one with researchers.

Later that morning, Porter briefed federal, state and local elected officials and community leaders on NASA's plans to reshape its aeronautics research program. U.S. Senator George Voinovich, U.S. Congressman Dennis Kucinich, State Representative Bob Spada and President and Chief Executive Officer of the Greater Cleveland Partnership Joseph Roman, were among more than 20 attendees. After Porter's overview, she and Center Director Dr. Woodrow Whitlow addressed guests' questions.

The guests later accompanied Porter and Whitlow on tours to the Aeroacoustic Propulsion Laboratory, Materials and Structures Laboratory and the Advanced Subsonic Combustor Rig, where researchers provided further details on specific Glenn-developed technologies.

During an All Hands meeting with employees in the afternoon, Porter reiterated information she shared during her November visit to Glenn. She stressed the three

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Inside

From the Director

Plum Brook facilities showcased for aerospace community

C-2006-730 Photo by Marvin Smith

Center Director Dr. Whitlow, Constellation Test and Verification Director William Arceneax, and other guests attending the open house toured the Cryogenic Propellant Tank Facility.

We recently showcased some of NASA's unique facilities during an open house at Plum Brook Station. Glenn personnel welcomed members of the aerospace community to learn more about the outstanding testing capabilities within the 64,000-acre campus.

Managers from Headquarters and across NASA centers joined industry, technology partners and other government agencies on tours of several test facilities. They stood inside the Space Power Facility (SPF), which houses the world's largest space environment simulation chamber, measuring 100-ft in diameter by 122-ft high; and got an awesome view of the Spacecraft Propulsion Facility (B–2), the only structure capable of testing full-scale, upper-stage launch vehicles and rocket engines under simulated high-altitude conditions. Pretty impressive stuff!

The Glenn team highlighted past and current projects within the facilities. Testing of two 66-foot-long solar sail propulsion system designs in the SPF last summer, for example, offers important milestones in the development of state-of-the-art propulsion technology that will harness the Sun's energy for future robotic space missions. Simulation testing is underway in the B–2 on the Transition Radiation Array for Cosmic Energetic Radiation (TRACER), a high-altitude scientific balloon that will help better characterize cosmic rays in the Earth's upper atmosphere.

During the open house, I beamed with pride—not only because of Plum Brook's amazing testing capabilities and accomplishments, but also because of the people who came together to make this happen in a short timeframe. This event was an important step in communicating Glenn's competencies. Thanks to all who made the open house a great success! ◆

A A of Aeronautics visits Glenn

Continued from page 1

principals guiding NASA's efforts in reshaping its Aeronautics Program—dedication to core competencies, focus on unique capabilities and crucialness in addressing the research needs of the Next Generation Air Transportation System (NGATS) with the Joint Planning and Development Office.

She noted that the inter-center research proposals would be completed at the end of the month. Research announcements will be released in mid May to solicit innovative and fundamental research in open competition from the broad national research community. Awards are anticipated at the end of the fiscal year.

"The Glenn team worked hard on their proposals," Porter said. She thanked several individual Glenn researchers and technologists for their efforts in developing the proposals.

In a media briefing following the All Hands, Porter shared her excitement about her visit to Glenn and stated that Glenn has always played a critical role in NASA's aeronautics research and will continue to do so under the new focus.

Left: Dr. Porter talks with employees at an All Hands meeting. Bottom: Dr. Porter held an aeronautics discussion with the Ohio delegation, elected officials and community leaders. Pictured, left to right, Ohio Senator Dale Miller, Glenn Deputy Director Rich Christiansen; Congressman Dennis Kucinich; Dr. Porter; Dr. Whitlow; U.S. Senator Voinovich; and Deputy Associate Administrator for Aeronautics Research Dr. Jaiwon Shin.

C-2006-801 Photos by Marvin Smith

Porter concluded her visit with an informal roundtable discussion with Glenn researchers, providing her with another opportunity to learn more about the quality of Glenn's research and its people. ◆

C-2006-777

News and Events

AA for Science visits

Associate Administrator for Science and former astronaut Dr. Mary Cleave visited Glenn on April 6. During her visit, center personnel showcased the technology development work funded by the Science Mission Directorate and flight hardware capabilities. Cleave met with the senior staff and presented an overview of NASA's Science programs. Center Director Dr. Woodrow Whitlow provided an overview of the center's capabilities and hosted a tour of several facilities. Pictured is Mike Krasowski, Optical Instrumentation and NDE Branch, discussing a prototype of the Materials International Space Station Experiment flight hardware with Cleave and Whitlow.

C-2006-617 Photo by Marvin Smith

Photo by S. Jenise Veris

Media view hardware

On April10, representatives of the Associated Press, Ohio News Network, FOX 8 News and The Plain Dealer participated in a media briefing held in the 8- by 6-Foot Supersonic Wind Tunnel to learn about Glenn's cable tray testing for the Space Shuttle Program. Scott Williamson, Joe Panek and David Stark, Research Testing Division, provided interviews on the series of tests and hardware developed to help determine whether the cable tray and pressurization line hardware can withstand the aerodynamic environment without the Protuberance Air Load (PAL) ramps on the external fuel tank. Pictured is Panek, left, showing Glenn-developed hardware used for analysis to The Plain Dealer's John Mangels. Kendall Greer, FOX 8, looks on.

NASA networking

On April 4, a small group of Glenn researchers met with local and regional business development specialists during FastPitch, a networking session offered by Battelle's Emergent™ services. Participants mixed and mingled, threw out ideas for feedback during 5-minute rotations and listened to presentations on featured NASA technology and intellectual property strategy. The session is part of a series to learn how to think more creatively about company formation in Northeast Ohio and is supported by The Ohio Department of Development. Glenn Microgravity Division's Nengli Zhang (OAI), center, and Dr. David Chao, right, demonstrate the potential of Contact Angle Technology.

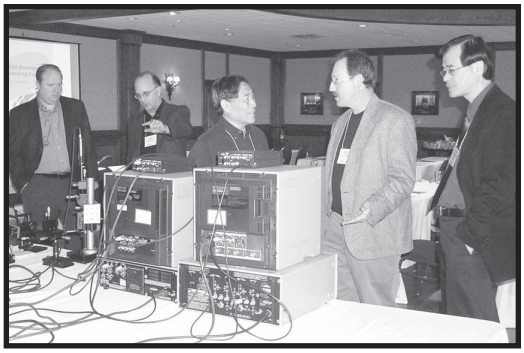


Photo by S. Jenise Veris

Library appreciation

C-2006-740 Photo by Marvin Smith

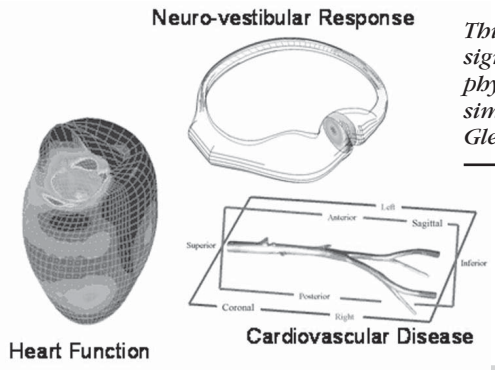
Glenn's Library hosted a Library User Appreciation Day, April 12, in celebration of National Library Week. Employees participated in hands-on demonstrations with vendors from the top database products including Thompson's Inspec® and Web of Knowledge, RefWorks, Elsevier's SCOPUS, Engineering Village 2, and ChemVillage. Kelly Heidman, RSIS/Organizational Development and Training Office, demonstrated the new agency training module, SATERN. Gail Perusek, Structural Systems Dynamics Branch, presented a Lunch and Learn Lecture entitled "Space Exercise Brought Down to Earth." The lecture gave employees insight to Glenn's role in the agency's efforts to maintain astronaut health and fitness during space missions.

NASA at I–X Center

Throughout April, Glenn brought a combination of education and inspiration to the I–X Indoor Amusement Park. On the Scout Weekend and School Getaway Day, attendees eagerly participated in Glenn's interactive NASA Quiz Show. People of all ages welcomed the opportunity to meet costumed astronaut, Eva. NASA exhibits highlighted the Vision for Space Exploration. Microgravity Man, pictured, demonstrated how free fall causes the weightless experience felt on both the rides and NASA's spacecraft.

Photo by Carol Hodanbosi

Research Highlights:
Focus on Biomedical Technology



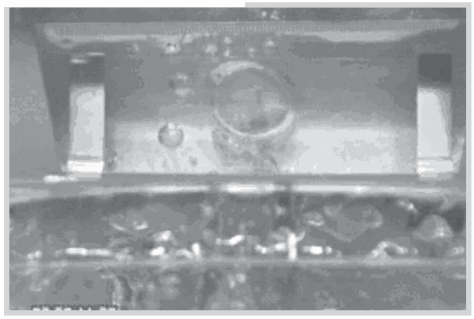
This illustration signifies ongoing physiological simulation work at Glenn.

Digital Astronaut and Integrative Physiological Modeling

Glenn has earned a significant role in NASA's Digital Astronaut (DA) Project, which seeks to develop an integrated numerical simulation of human physiological functions affected by space flight. Glenn's role stems from ongoing efforts related to Integrative Physiological Simulations (IPhS), since IPhS modules will be validated and integrated into the DA framework. The IPhS responds to specific queries for computational analysis of human physiology by first identifying the appropriate systems to be modeled, then acquiring and integrating suitable computational models to build an accurate simulation. Glenn, along with partners at the National Center for Exploration Research and the Cleveland Clinic, has used its expertise in microgravity fluids, advanced materials and advanced computational modeling to provide computational analyses of interest to those responsible for crew health. Physiological systems simulated include cardiac function, bone loss and fracture resistance and neuro-vestibular adaptation. A recent modeling activity of these simulations performed for the Exploration Atmospheres Working Group helped to identify an unrecognized synergistic effect between the human response to mildly hypoxic atmospheres and microgravity. That analysis resulted in a reconsideration of the CEV cabin atmosphere. POC: Dr. DeVon Griffin, Exploration Systems Division, 3-8109.

Integrated Medical Model

Glenn personnel, in conjunction with Johnson Space Center, is developing a numeric tool known as the Integrated Medical Model (IMM). This model utilizes a Probabilistic Risk Analysis (PRA) approach in determining medical risk and treatment strategies for exploration missions. Input data includes best clinical and medical research evidence, analytical models, computational simulations, crew demographics and mission parameters. The model is based on a quantifiable metric, such as functional astronaut time lost or a reduction in an astronaut's fitness for duty. The model also allows users to optimize health care strategies and resources. Glenn, in collaboration with clinical partners at the Cleveland Clinic, has developed the Bone Fracture Risk module of the IMM. In altered gravity environments, humans lose bone mass in load-bearing areas of the skeleton, possibly increasing fracture risk at those sites. In principle, such an occurrence could have substantial mission impact. Glenn's efforts have already contributed to more efficient development strategies of the IMM architecture. POC: Dr. Jerry Myers, Exploration Systems Division, 3-2864.



Top and side views of bubble interference with the IV fluid mixing in microgravity.

Water Generation and Fluid Mixing

Planning for extended human exploration missions requires an advanced crew health care system capable of stabilizing and treating an ill or injured crew member. In such cases, access to replenishable intravenous (IV) fluids for both hydration and drug treatment delivery is critical in the event of a severe medical emergency. Glenn researchers have been on the forefront of this renewed effort to address water generation and IV drug preparation in reduced-gravity environments. As part of the Exploration Medical Capabilities (ExMC) project, researchers performed extensive testing of chemical preparations by examining methods of mixing drug concentrates and powders in microgravity utilizing the 2.2 Second Drop Tower. Research has clarified several issues regarding IV bag design, bubble dynamics and limitations of different mixing methodologies. The most promising mixing methods will be further characterized and investigated in upcoming reduced gravity airplane tests set for next year. POC: Charles Niederhaus, Microgravity Division, 3-5461. ◆

Retiree Spotlight

Reid stays in stride with NASA

BY S. JENISE VERIS

While he no longer competes in marathons, Glenn retiree Dr. Lonnie Reid maintains a steady pace of intellectual stimulation by running his own company, AP Solutions, Inc. (APSI).

Reid, an expert in compressor design, retired as Internal Fluid Mechanics Division chief in 1993 with 32 years of NASA service. He then returned to Glenn as a contractor for nearly five years before discovering a niche that inspired APSI.

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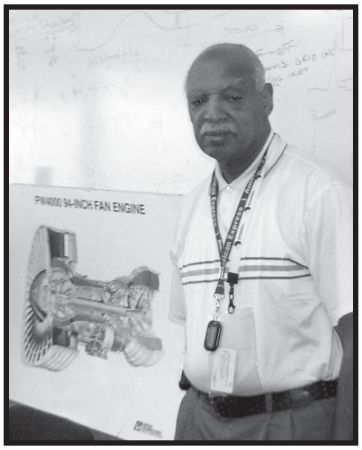
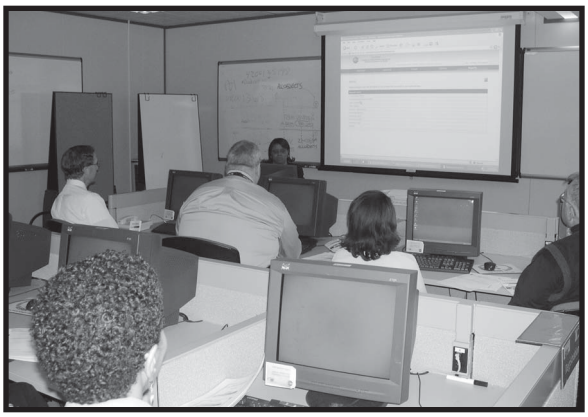


Reid in his office at Glenn.

Glenn rolls out mission to SATERN

While NASA's arrival on Mars is years away, the SATERN (System Administration, Training and Educating Resources for NASA) Learning Management System is well within reach. Members of Glenn's Organization Development and Training Office (OD&TO) recently traveled to directorates across the center to explain the functions and benefits of the system to employees. OD&TO is now offering instructor-led courses and Web-based training for the new system.



Bland, front, explains the SATERN system to members of the Center Operations Directorate. Bland and Dennis Conrad, OD&TO, traveled to all directorates to share briefings on the electronic-based system.

Glenn's phased implementation approach begins with access to the new SATERN online content (former SOLAR courses) on May 8. All civil service employees will use the NF–1735 (training application) through Informed Filler for onsite training requests. At the same time, the OD&TO will work with clients and customers to build courses and curriculum into the new SATERN system.

"In the past, NASA employees used a variety of center forms and procedures to request offsite training," explained SATERN Transition and Implementation Lead Nola Bland, OD&TO. "The SATERN learning management system requires only one standard form and approval process to be used across the agency."

Glenn civil service employees can begin using the new NF–1735 form through Informed Filler immediately. Next month, the form will be available through the SATERN system. Training on SATERN and a process guidebook for administrators and training coordinators will also be available.

"This is an exciting time for learning at Glenn," Bland said. "This new system will allow employees to add courses to their own learning plan and review their learning history with just a click of the mouse. OD&TO systems administrators can build an entire learning curriculum to assist employees in reaching the goal set by themselves and/or their management. It standardizes the agency learning systems (SOLAR, and AdminSTAR and NORS at other centers) into one system rather than having several systems. So when you need training, SATERN is the place to go!" ◆

A click of the mouse

- View your training history
- See what's being offered
- Register for a class
- Launch an online training course
- Track the status of your training request

Zatroch captures slice of center history

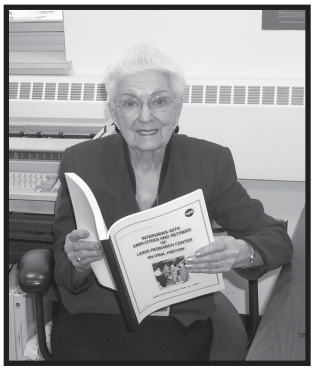
BY DOREEN ZUDELL

When Del Zatroch interviewed 25 NASA Lewis employees (working or retired from 1941 to 1991) and other prominent people from the local area for an Organizational Communication and Development course at Kent State University, she had no idea that the assignment would become her legacy to NASA.

In 1991, Zatroch interviewed center directors Lawrence Ross and Andrew Stofan. She also spoke with Frederick Crawford, former chairman of TRW World Headquarters, who was instrumental in establishing the center in Cleveland; Isidore Warshawsky, distinguished research associate with 60 years of NACA–NASA service; and Dr. Patricia O'Donnell, deputy of Lewis' ElectricTechnology Branch who introduced solar energy to people in Gabon, Africa. Zatroch recorded the interviews on cassette, transcribed them to hard copy and photographed all interviewees. Her interview with Crawford was chosen for inclusion in the Lewis time capsule in celebration of the center's 50th anniversary in 1991.

"Interviewing these talented people was both humbling and inspiring," Zatroch said. "And my professor was so pleased with the results of my project that he suggested I publish the report. I decided that the historical interviews belonged to the center, so I wanted to publish a book for the archives."

While Zatroch waited for funding, she continued serving the center as an administrative support assistant in various branches and divisions. She also kept active in such activities as the LESA Local 28 Union, Business and Professional Women's organization, and the Speakers Bureau.



Zatroch with her book.

She also presented three of her interviews during NASA's Inventing Flight activities in Dayton in 2004.

In 2002, she was offered the opportunity to work fulltime on the project toward the goal of publishing in-house at Glenn. Part of the project included converting the cassette interviews to CD format, which she presented to employees as on-site training presentations in 2003 to 2004.

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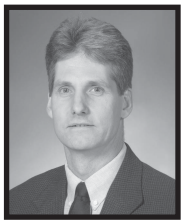
People

Awards, Honors


Dr. Baaklini


Bencic


Dr. Eldridge

The International Society of Optical Engineering honored three Glenn engineers at the society's international symposia on Smart Structures and Materials and Nondestructive Evaluation (NDE) for Health Monitoring and Diagnostics in February. Dr. George Baaklini, Optical Instrumentation and NDE Branch chief, received the Lifetime Achievement Award for significant contributions to advances in research, development and applications of NDE related to health monitoring and diagnostics. Timothy Bencic, Optical Instrumentation and NDE Branch, and Dr. Jeffrey Eldridge, Durability and Protective Coatings Branch, were the recipients of the Best Paper Award entitled "Smart Coatings for Health Monitoring and Nondestructive Evaluation."


Dr. Earls


Dr. McDowell


Dr. Stanford


Tolbert

Former Center Director Dr. Julian Earls and three current Glenn employees were among those honored at the Fifth Annual Nsoroma Awards Program sponsored by the Cleveland Chapter of the National Technical Association (NTA) in March. Nsoroma Awards recognize women and men of color in science, technology and education who have achieved excellence in their fields, shown personal and professional fortitude and demonstrated involvement in their community. Dr. Mark McDowell, Bio Science and Technology Branch, was one of two science honorees. Dr. Malcolm Stanford, Tribology and Surface Science Branch, and Carol Tolbert, Constellation Systems Project Office, were the technology honorees. Earls, who was one of the founding members and the first president of the Cleveland Chapter of NTA, received the Lifetime Achievement Award.


Litt

The Controls, Diagnostics & Instrumentation (CDI) Committee of the International Gas Turbine Institute selected the paper entitled "An Optimal Orthogonal Decomposition Method for Kalman Filter-Based Turbofan Engine Thrust Estimation," by Jonathan Litt, Controls and Dynamics Branch (Army), as the CDI Best Paper award winner from the American Society of Mechanical Engineers (ASME) Turbo Expo 2005. Litt will be presented an award plaque during the ASME Turbo Expo 2006, May 8–11, in Barcelona, Spain.

Space Flight Awareness Honorees

NASA recently recognized three Glenn Space Flight Awareness (SFA) honorees for key contributions to NASA's Human Space Flight Programs and Return-to-Flight initiatives. The SFA Award, sponsored by the Office of Space Flight and the NASA/Industry/SFA Panel, is one of the most prestigious awards available to employees of the NASA/Industry/Shuttle/Space Station Team.

Dr. Rebecca MacKay, Materials Division, was recognized for outstanding service leading a multi-center team to investigate and resolve a significant component-cracking problem in the space shuttle's reaction control thruster system critical to ensuring a safe Return to Flight.

Duane Revilock, Structures and Acoustics Division, was recognized for extraordinary and sustained commitment above and beyond the call of duty to NASA Glenn ballistic impact testing to deliver vital experimental data aiding the Columbia Accident Investigation and NASA's Shuttle Return-to-Flight programs.

Carlos Rodriguez, Power and Communication Systems Analysis Office, (not pictured) was recognized for sustained high-quality power system analysis and problem solving to meet the predicted power demands of the Internationa Space Station and Space Shuttle programs.


Dr. MacKay


Revilock

Tickets on sale now!
NASA Night at Jacobs Field
May 19 at 7:05 p.m.
See Today@Glenn or the Exchange

AeroSpace Frontiers is an official publication of Glenn Research Center, National Aeronautics and Space Administration. It is published the first Friday of each month by the Community and Media Relations Office in the interest of the Glenn work force, retirees, government officials, business leaders and the general public. Its circulation is approximately 6700.

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DEADLINES: News items and brief announcements for publication in the June issue must be received by noon, May 12. The deadline for the July issue is noon, June 16. Submit contributions to the editor via e-mail, doreen.zudell@grc.nasa.gov, fax 216–433–8143, phone 216–433–5317 or 216–433– 2888, or MS 3–11. Ideas for news stories are welcome but will be published as space allows. View us online at http://AeroSpaceFrontiers.grc.nasa.gov.

2005 APEX® AWARDS FOR PUBLICATION EXCELLENCE

News Notes

LESA MEETING: LESA/IFPTE, Local 28, will hold its next monthly membership meeting on Wednesday, May 10, at noon in the Employee Center.

EMPLOYEE STEP OUT: Bring your walking shoes and STEP OUT, Wednesday, May 17 (Rain Date: May 18). Walk the 1.4-mile Taylor-Walcott loop anytime between 11 a.m. and 1 p.m., and be sure to sign up for door prizes at the southeast entrance of the Employee Center. A dietician and other healthcare specialists will be on-hand to answer questions and take blood pressure screenings. POC: The Fitness Center, 3-6313.

ASIAN PACIFIC AND ISLANDERS HERITAGE MONTH: Employees are invited to attend the observance event hosted by Glenn's Asian and Pacific Islanders Advisory Council on Thursday, May 18, 10 a.m. to noon in the Administration Building Auditorium. The theme is "Celebrating Decades of Pride, Partnership and Progress," and features a keynote address from John Mok, former director, Department of Port Control for the City of Cleveland. There will also be cultural exchange activities including cuisine sampling.

Mok

LLF GOLF OUTING: Lewis Little Folks (LLF) onsite child development center will host its sixth annual benefit golf outing on Friday, June 2, at Springvale Golf Course, North Olmsted. Shotgun tee-off begins at 9 a.m. The cost is $65 per golfer ($20 tax deductible) and includes cart, 18-hole golf game, green fees, dinner, golf kit and prizes. Win a Nissan Pathfinder. Entry deadline is May 12. POC: Tina Jicha, 3-3827.

FACILITY TOURS: Every first Saturday of the month visitors can tour a selected facility to gain an up-close look at some of the center's world-class facilities. Guided tours are conducted every hour between 10:30 a.m. and 1:30 p.m. The tours are as follows: June 3, Small Multipurpose Research Facility; July 1, Zero-Gravity Facility; August 5, 10- by 10-Foot Supersonic Wind Tunnel; September 2, Electric Propulsion Laboratory; and October 7, Icing Research Tunnel. Tours require registration and are only open to U.S. citizens. POC: 216-433-9653.

Reid utilizes NASA technology

Continued from page 4

Reid founded APSI in March 1998 to provide technical expertise in modifying computational fluid dynamic codes developed by Glenn and to apply these codes to help commercial organizations improve products and/or reduce the time to market for new product. Reid fine-tuned processes and defined market share while a tenant of the Lewis Incubator for Technology's satellite facility for software, electronics and communications technology between 1999 and 2003.

"Under a Space Act Agreement with Glenn, we became an authorized user of the executable version—not the source—of the APNASA code, which is used by commercial aircraft engine manufacturers for design and analysis of multistage turbomachinery components," explained Reid. "If, in the process of using the code for a customer, we discover an advancement of benefit to others, NASA assumes the right to incorporate it in the source code. This transfer of NASA technology aids our nation's ability to compete globally, and provides a broader and stronger advocacy for NASA technology development as well as business opportunities for AP Solutions."

Reid and his staff of engineers have supported major aeronautics programs such as the Ultra Efficient Engine Technology, General Aviation and the Joint Strike Fighter fan design.

When Reid is ready to retire, again, he may return to teach at Cuyahoga Community College, or participate in tutorial programs to help prepare the next generation of engineers and scientists. ◆

A slice of history

Continued from page 5

The book, "Interviews with Employees and Retirees of Lewis Research Center, An Oral History," with accompanying CDs, was published shortly before her retirement on March 31, 2006. A reference copy is available in the Glenn Library, the Glenn History Office and NASA Headquarters. A copy will also be forwarded for consideration to the National Archives and Records Administration, Great Lakes Region, in Chicago.

"Pulling this project together as a historical reference was a true labor of love, and I owe a great debt of gratitude to John Taylor and the Engineering Development Division for all their support," Zatroch affirmed. "This center has given me so much over the past 46 years and this is my gift in return." ◆

In Appreciation

On behalf of the daughters and family of Larry Turske, I would like to express our gratitude for the overwhelming NASA turnout at his recent memorial service. Even though Larry left the center almost 15 years ago, he always treasured his NASA friends, and at the service you showed just how many he had. Bless you all.

—Walt Turske

In Memory

Carl Norgren, 80, who retired in 1986 after 37 years of NACA/NASA service, recently died. Norgren served as a senior scientist whose expertise was centered on jet engine and fuel research.

Joseph Shivak, 71, who retired in 1995, after 40 years of Federal service including a tour in the Air Force, recently died. Shivak was a supervisor in the Technical Installation Division prior to retiring from NASA Glenn.

Lawrence Turske, 59, who worked at the center as an Army employee for 23 years prior to leaving in 1993, recently died. During his Glenn career, Turske served as an electronics technician in the Test Installation Division. His brother, Walter Turske, retired in 1994.

NASA recognizes quality contract performance

Photo by Doreen Zudell

Hairston; Robert Fails, associate director; David Lowenfeld and Richard Manco, BTAS/Community and Media Relations; and Rich Christiansen, deputy director; display finalist plaque during a recent Director's Leadership Meeting.

Three Glenn prime contractors are among six recipients of the 2005 George M. Low Award, the agency's premier quality and performance award program for prime and subcontractors. NASA Administrator Michael Griffin presented the awards on March 3 during the 20th NASA Continual Improvement and Reinvention Conference on Quality Management in Arlington, Va.

The Low Award recognizes large and small contracting organizations that demonstrate excellence and outstanding technical and managerial achievement based on seven criteria: customer satisfaction and contract technical performance; schedule performance, cost performance; management initiatives responsive to strategic goals; leadership and continuous improvement; research and development and innovative technology breakthroughs; and items of special interest to NASA.

Business Technologies and Solutions, Inc. (BTAS), Beavercreek, Ohio, a small minority/woman-owned company, won the Low Award in the Small Business Product category based on Glenn's nomination for its Visitor Center contract. The award cited BTAS' outstanding record of delivery on a series of diverse and multifaceted outreach programs and exhibits that harness the technologies and professional experiences of Glenn's extraordinary employees.

"I congratulate BTAS on this outstanding award," External Programs Director John Hairston said. "I also extend my congratulations to Glenn's nominating team for recognizing BTAS' exemplary demonstration of support to the agency's Centennial of Flight Initiative."

Onsite contractors QSS Group Inc., and SGT, Inc., also won Low awards based on nominations from Ames and Goddard in the Large Business Service and Small Business Service categories, respectively. QSS provides specialized technical support under the Glenn Engineering and Scientific Support (GESS) contract. SGT became the prime contractor for Glenn's technical, information, administrative and logistics services (TIALS) contract last May.

The award includes a trophy of Low's profile to commemorate his dedication to quality and excellence, which greatly contributed to the early development of NASA Space Programs. During his 27 years of service, Low provided management and direction for the Mercury, Gemini, Apollo and advanced manned missions programs.

For more details on the award and conference, visit http://www.hq.nasa.gov/office/codeq/gml/index.htm. ◆

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